

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Airgas Specialty Gases
1075 Cinclare Drive
Port Allen, LA 70767
225.388.0900
FAX: 225.388.0959
www.airgas.com

Part Number: E02NI99E15A0138 Reference Number: 83-124312941-1
Cylinder Number: CC14644 Cylinder Volume: 144 Cu.Ft.
Laboratory: ASG - Port Allen - LA Cylinder Pressure: 2015 PSIG
PGVP Number: B42012 Valve Outlet: 350
Gas Code: APPVD Analysis Date: Apr 27, 2012

Expiration Date: Apr 27, 2015

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed. Analytical Methodology does not require correction for analytical interferences. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.
Do Not Use This Cylinder below 150 psig, i.e. 1 Mega Pascal

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty
CARBON MONOXIDE	2500 PPM	2472 PPM	G1	+/- 1% NIST Traceable
NITROGEN	Balance			

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	00052503	SG9160725BAL	1985PPM CARBON MONOXIDE/NITROGEN	Apr 15, 2012

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
DH3CO	NonDispersive Infrared	Apr 02 2012

Triad Data Available Upon Request

Notes:

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Part Number: E02NI99E15A0138 Reference Number: 83-124312941-1
Cylinder Number: CC22326 Cylinder Volume: 144 Cu.Ft.
Laboratory: ASG - Port Allen - LA Cylinder Pressure: 2015 PSIG
PGVP Number: B42012 Valve Outlet: 350
Gas Code: APPVD Analysis Date: Apr 27, 2012

Expiration Date: Apr 27, 2015

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed. Analytical Methodology does not require correction for analytical interferences. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.
Do Not Use This Cylinder below 150 psig, i.e. 1 Mega Pascal

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty
CARBON MONOXIDE	2500 PPM	2480 PPM	G1	+/- 1% NIST Traceable
NITROGEN	Balance			

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	00052503	SG9160725BAL	1985PPM CARBON MONOXIDE/NITROGEN	Apr 15, 2012

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
DH3CO	NonDispersive Infrared	Apr 02, 2012

Triad Data Available Upon Request

Notes:

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CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number: E02NI99E15A0083 Reference Number: 54-124341745-1
Cylinder Number: CC213280 Cylinder Volume: 144 Cu.Ft.
Laboratory: ASG - Chicago - IL Cylinder Pressure: 2015 PSIG
PGVP Number: B12012 Valve Outlet: 350
Gas Code: APPVD Analysis Date: Oct 20, 2012

Expiration Date: Oct 20, 2020

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS				
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty
CARBON MONOXIDE	170.0 PPM	167.4 PPM	G1	+/- 1% NIST Traceable
NITROGEN	Balance			

CALIBRATION STANDARDS				
Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM/CO	09060434	CC287237	501.3PPM CARBON MONOXIDE/	Feb 01, 2013

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
CO-1 HORIBA VIA-510 TKPPF7FG	NDIR	Oct 15, 2012

Triad Data Available Upon Request

Notes:



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EPA Protocol Gas Mixture

Certified Concentrations

Component	QAS Number	Concentration	Accuracy	Procedure
CARBON MONOXIDE	630-08-0	171.4 PPM	+/- 1%	01
NITROGEN	7721-37-8	Balance		

Cylinder Number: CG48846
Cylinder Pressure: 2015 PSIG
Certification Date: Oct 20, 2012
Expiration Date: Oct 20, 2020
Reference Number: 54-124341745-1
Part Number: E02NI99E15A0083
PGVP Number: B12012
Gas Code: APPVD



Notes:

Do not use cylinder below 100 psig.

Certification performed in accordance with "EPA Traceability Protocol document EPA 800/R-12/531 (May 2012)" using assay procedures listed.

To reorder this mixture, use Part Number: E02NI99E15A0083

12722 S. Wentworth Ave., B1 Chicago IL 60628

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CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Airgas Specialty Gases
630 United Drive
Durham, NC 27713
919-544-3773 Fax: 919-544-3774
www.airgas.com

Part Number: E02NI99E15A0383 Reference Number: 122-124342451-1
Cylinder Number: CC421756 Cylinder Volume: 144 Cu.Ft.
Laboratory: ASG - Durham - NC Cylinder Pressure: 2015 PSIG
PGVP Number: B22012 Valve Outlet: 660
Gas Code: SO2 Analysis Date: Nov 05, 2012

Expiration Date: Nov 05, 2016

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS				
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty
SULFUR DIOXIDE	15.00 PPM	15.22 PPM	G1	+/- 1% NIST Traceable
NITROGEN	Balance			

CALIBRATION STANDARDS				
Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	100610	CC284538	14.82PPM SULFUR DIOXIDE/NITROGEN	Jul 13, 2013
ANALYTICAL EQUIPMENT				
Instrument/Make/Model		Analytical Principle		Last Multipoint Calibration
Nicolet 6700 AHR0801333 SO2		FTIR		Oct 11, 2012

Triad Data Available Upon Request

Notes:

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Audit Cylinder
SO2

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Airgas Specialty Gases
630 United Drive
Durham, NC 27713
919-544-3773 Fax: 919-544-3774
www.airgas.com

Part Number: E02NI99E15A0383 Reference Number: 122-124342451-1
Cylinder Number: CC421981 Cylinder Volume: 144 Cu.Ft.
Laboratory: ASG - Durham - NC Cylinder Pressure: 2015 PSIG
PGVP Number: B22012 Valve Outlet: 660
Gas Code: SO2 Analysis Date: Nov 05, 2012

Expiration Date: Nov 05, 2016

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS				
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty
SULFUR DIOXIDE	15.00 PPM	15.13 PPM	G1	+/- 1% NIST Traceable
NITROGEN	Balance			

CALIBRATION STANDARDS				
Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	100610	CC284538	14.82PPM SULFUR DIOXIDE/NITROGEN	Jul 13, 2013
ANALYTICAL EQUIPMENT				
Instrument/Make/Model		Analytical Principle		Last Multipoint Calibration
Nicolet 6700 AHR0801333 SO2		FTIR		Oct 11, 2012

Triad Data Available Upon Request

Notes:

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PARR Calibration/Precision

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CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Airgas Specialty Gases
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Port Allen, LA 70767
225.388.0900
FAX : 225.388.0959
www.airgas.com

Part Number: E02NI99E15A0350 Reference Number: 83-124256035-2
Cylinder Number: CC343761 Cylinder Volume: 144 Cu.Ft.
Laboratory: ASG - Port Allen - LA Cylinder Pressure: 2015 PSIG
Analysis Date: Mar 15, 2011 Valve Outlet: 660

Expiration Date: Mar 15, 2013

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed. Analytical Methodology does not require correction for analytical interferences. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.
Do Not Use This Cylinder below 150 psig.i.e. 1 Mega Pascal

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty
SULFUR DIOXIDE	50.00 PPM	48.30 PPM	GI	+/- 1% NIST Traceable
NITROGEN	Balance			

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	08061508	CC254794	94.67PPM SULFUR DIOXIDE/NITROGEN	Oct 15, 2012

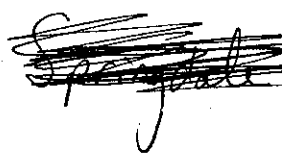
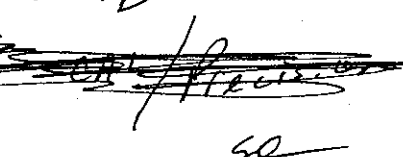
ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AHR0801556 LSO2	FTIR	Feb 18, 2011

Triad Data Available Upon Request

Notes:


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CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Airgas Specialty Gases
1075 Cinclare Drive
Port Allen, LA 70767
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www.airgas.com

Part Number: E02NI99E80A0202 Reference Number: 83-124256035-3
Cylinder Number: LL7671 Cylinder Volume: 83 Cu.Ft.
Laboratory: ASG - Port Allen - LA Cylinder Pressure: 2215 PSIG
Analysis Date: Mar 15, 2011 Valve Outlet: 660

Expiration Date: Mar 15, 2013

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed. Analytical Methodology does not require correction for analytical interferences. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 150 psig i.e. 1 Mega Pascal

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty
SULFUR DIOXIDE	50.00 PPM	49.62 PPM	G1	+/- 1% NIST Traceable
NITROGEN	Balance			

CALIBRATION STANDARDS

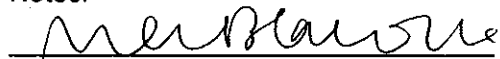
Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	08061508	CC254794	94.67PPM SULFUR DIOXIDE/NITROGEN	Oct 15, 2012

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AHR0801556 LSO2	FTIR	Feb 18, 2011

Triad Data Available Upon Request

Notes:



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CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Airgas Specialty Gases
1075 Cinclare Drive
Port Allen, LA 70767
225.388.0900
FAX : 225.388.0959
www.airgas.com

Part Number: E02NI99E80A0288 Reference Number: 83-124256035-4A
Cylinder Number: SG9115506ALC Cylinder Volume: 83 Cu.Ft.
Laboratory: ASG - Port Allen - LA Cylinder Pressure: 2215 PSIG
Analysis Date: Mar 22, 2011 Valve Outlet: 660

Expiration Date: Mar 22, 2013

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed. Analytical Methodology does not require correction for analytical interferences. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.
Do Not Use This Cylinder below 150 psig.i.e. 1 Mega Pascal

ANALYTICAL RESULTS				
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty
NITRIC OXIDE	50.00 PPM	50.61 PPM	G1	± 1% NIST Traceable
NITROGEN	Balance			

Total oxides of nitrogen 50.80 PPM For Reference Only

CALIBRATION STANDARDS				
Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	10061119	cc283757	49.73PPM NITRIC OXIDE/NITROGEN	Jul 23, 2016
ANALYTICAL EQUIPMENT				
Instrument/Make/Model		Analytical Principle		Last Multipoint Calibration
Nicolet 6700 AHR0801556 LNO		FTIR		Feb 28, 2011

Triad Data Available Upon Request

Notes:

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CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Airgas Specialty Gases
1075 Cinclare Drive
Port Allen, LA 70767
225.388.0900
FAX : 225.388.0959
www.airgas.com

Part Number: E02NI99E15A0350 Reference Number: 83-124256035-2
Cylinder Number: CC20611 Cylinder Volume: 144 Cu.Ft.
Laboratory: ASG - Port Allen - LA Cylinder Pressure: 2015 PSIG
Analysis Date: Mar 15, 2011 Valve Outlet: 660

Expiration Date: Mar 15, 2013

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed. Analytical Methodology does not require correction for analytical interferences. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 150 psig.i.e. 1 Mega Pascal

ANALYTICAL RESULTS				
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty
SULFUR DIOXIDE	50.00 PPM	49.00 PPM	G1	+/- 1% NIST Traceable
NITROGEN	Balance			

CALIBRATION STANDARDS				
Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	08061508	CC254794	94.67PPM SULFUR DIOXIDE/NITROGEN	Oct 15, 2012
ANALYTICAL EQUIPMENT				
Instrument/Make/Model		Analytical Principle		Last Multipoint Calibration
Nicolet 6700 AHR0801556 LSO2		FTIR		Feb 18, 2011

Triad Data Available Upon Request

Notes:

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CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

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Port Allen, LA 70767
225.388.0900
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www.airgas.com

Part Number: E02NI99E15A0350 Reference Number: 83-124256035-2
Cylinder Number: CC334092 Cylinder Volume: 144 Cu.Ft.
Laboratory: ASG - Port Allen - LA Cylinder Pressure: 2015 PSIG
Analysis Date: Mar 15, 2011 Valve Outlet: 660

Expiration Date: Mar 15, 2013

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed. Analytical Methodology does not require correction for analytical interferences. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.
Do Not Use This Cylinder below 150 psig, i.e. 1 Mega Pascal

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty
SULFUR DIOXIDE	50.00 PPM	49.04 PPM	G1	+/- 1% NIST Traceable
NITROGEN	Balance			

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	08061508	CC254794	94.67PPM SULFUR DIOXIDE/NITROGEN	Oct 15, 2012

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AHR0801556 LSO2	FTIR	Feb 18, 2011

Triad Data Available Upon Request

Notes:

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CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Airgas Specialty Gases
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Part Number: E02NI99E15A0147 Reference Number: 83-124256035-1
Cylinder Number: CC208157 Cylinder Volume: 144 Cu.Ft.
Laboratory: ASG - Port Allen - LA Cylinder Pressure: 2015 PSIG
Analysis Date: Mar 14, 2011 Valve Outlet: 660

Expiration Date: Mar 14, 2013

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed. Analytical Methodology does not require correction for analytical interferences. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.
Do Not Use This Cylinder below 150 psig.i.e. 1 Mega Pascal

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty
NITRIC OXIDE	50.00 PPM	51.78 PPM	G1	+/- 1% NIST Traceable
NITROGEN	Balance			

Total oxides of nitrogen

51.81 PPM

For Reference Only

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	10061119	cc283757	49.73PPM NITRIC OXIDE/NITROGEN	Jul 23, 2016

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AHR0801556 LNO	FTIR	Feb 28, 2011

Triad Data Available Upon Request

Notes:

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CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Airgas Specialty Gases
1075 Cinclare Drive
Port Allen, LA 70767
225.388.0900
FAX : 225.388.0959
www.airgas.com

Part Number: E02NI99E15A0147 Reference Number: 83-124256035-1
Cylinder Number: CC221153 Cylinder Volume: 144 Cu.Ft.
Laboratory: ASG - Port Allen - LA Cylinder Pressure: 2015 PSIG
Analysis Date: Mar 14, 2011 Valve Outlet: 660

Expiration Date: Mar 14, 2013

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed. Analytical Methodology does not require correction for analytical interferences. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.
Do Not Use This Cylinder below 150 psig i.e. 1 Mega Pascal

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty
NITRIC OXIDE	50.00 PPM	50.06 PPM	G1	+/- 1% NIST Traceable
NITROGEN	Balance			

Total oxides of nitrogen

50.10 PPM

For Reference Only

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	10061119	cc283757	49.73PPM NITRIC OXIDE/NITROGEN	Jul 23, 2016

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AHR0801556 LNO	FTIR	Feb 28, 2011

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Notes:

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